Developing Capabilities for Public Construction Clients

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Abderisak Adam, Göran Lindahl and Per-Erik Josephson

Abstract Clients in the public sector face a large number of challenges in designing, procuring and managing major construction projects in a manner that is conducive to the organization's overall goals. The role of the client in bringing about successful project completion has more recently been emphasized with a growing number of studies focusing on developing dynamic client capabilities that facilitate the handling of a project through all of its different phases.

Though the capabilities of the client carries immense importance in all construction projects, the importance is further exacerbated by the sheer scale of the projects involved in major construction projects, a development which has prompted governmental agencies to inquire into ways to improve processes in the client organization.

To address such inquiries, this paper which is based on a literature review, explores the types of dynamic capabilities that emerge with respect to public construction clients and in particular, if and how a specific client capability influences a specific project outcome. The mapping of capabilities constitutes a theoretical foundation for a forthcoming empirical study on the same topic.

Keywords Public clients • Dynamic capabilities • Infrastructure

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Introduction

It is an oft-repeated truism that the more capable the organization, the more enhanced its ability to thrive. Perhaps nowhere is that more evident than in construction. The industry is inundated with myriads of stakeholders, from the more obvious actors: the owners, contractors and consultants to the extensive range of, architects, banks, regulatory institutions and users who all - in one way or the other - come in contact with the project (Chinyio & Olomolaiye, 2010).

These different stakeholders have their own standards with respect to what qualifies as a successful project. In the case of the client organization, Frödell et al. (2008) recount how clients often perceived the actual process of executing project goals to be less challenging than that of defining the goals to begin with, a difficulty which can be alleviated by better communication with the users; the ability to properly communicate with the end user, define project goals and execute in accordance to those goals are all pivotal capabilities that the client organization needs to possess (Kometa, et al., 1994; Lim & Ling, 2002; Xia & Chan, 2010). The Oxford Dictionaries (2014) defines the term *capability* as "the power or ability to do something" which seems to suggest a sort of executional potential, a connation that is stated more explicitly in Merriam-Webster's Dictionary (2014) in which capability is viewed as "a feature or faculty capable of development." This attribute of potentiality is at the heart of the term. It alludes to capability as a form of resource that can not only be acquired, harvested and improved but also deployed at will. In a similar fashion, capability, and dynamic capability in particular, has been defined in terms of the ability to enact organizational change by adopting various operational measures (Teece, 1997).

Developing the competencies of public clients is important as it serves to protect and strengthen the role of the client organization in fostering innovation in the construction industry (Manley, 2006). This becomes especially important considering the complexity and the enormity of the projects that are procured by governmental agencies (APCC, 2002). For that reason, governments need to take the client organizations' capabilities into account when designing procuring strategies and safeguarding mechanisms (Furneaux, et al., 2008). Part of doing so is to ensure that the client does not engage in behavior that sets out to make the project more complex than it needs to be and instead steer away from unnecessary demands that increases project complexity (Lim & Ling, 2002).

The client is in the position of the procurer and therefore has the overall responsibility to manage the direction of the project. This, both in terms of designing the initial contractual obligation in a way that is conducive to the project's overall goals but also in terms of achieving better cooperation between the different actors in the supply chain to overcome project challenges and thereby improve the success of the project (Briscoe, et al., 2004). In discussing these challenges, The National Audit Office (NAO, 2009) of the United Kingdom issued a report calling for the development of public clients' skills. A particular emphasis was placed on improving commercial skills due to their importance in determining the

trajectory of a specific project and how it eventually unfolds. This line of thought can also be found in the work of Kometa et al. (1994) in which it was shown that client performance is not solely dependent on a single attribute but instead on a number of different attributes of which financial attributes play a substantial role.

Recommendations to public organizations included the call for a more rigorous hiring process in order to attract candidates with a greater exposure to the private sector. The report issued by the NAO also suggests the use of mentoring programs to support skill development of current employees, that career paths be made more clear, standardization of work procedures be implemented and more adequate ways of measuring commercial skills be introduced despite the difficulties involved in doing so (NAO, 2009). However, in stressing the importance of commercial capabilities, it is important not to lose sight of the complete picture.

Consequently, this paper takes as a point of departure the recognition that client capabilities should be discussed not solely from the point of view of commercial considerations, but instead from that of a holistic outlook encompassing both the relational and contractual capabilities discussed by Hartman et al. (2010), the commercial capabilities stressed by NAO (2009) as well as other forms of capabilities that fall outside of these categories but whose impact on the outcome of the project is palpable.

The objective of this paper is to describe how the public construction client can harness, utilize and prioritize the capabilities required to handle large scale construction projects in a manner conducive to the client organization's overall goals.

In pursuit of this objective, a literature study was carried out which resulted in a mapping and subsequent categorization of capabilities based on research literature dealing with the client role, dynamic capabilities and organizational learning. The mapping of capabilities constitutes a theoretical foundation for a forthcoming empirical study on the addressed topic.

Literature Review

This section gives an overlook of the public construction client in terms of the role which the client embodies in the construction arena and how that affects the projects that emerge.

Dynamic Capabilities

Teece et al. (1997) notes that dynamic capabilities are essentially routines, be they organizational or strategic, that serve to create new resource configurations for firms. The term can thus be viewed as a type of process that integrates, reconfigures as well as gains and relinquishes resources. The original definition put forward by Teece et al. (1997, p. 516) explained dynamic capabilities as "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments." This particular description has gained a

considerable amount of traction and is often adopted as the standard definition for the term, see Eisenhardt and Martin (2000); Helfat, et al. (2007); and Wilkens, et al. (2004) for notable examples. In spite of the definition's popular use, it is not without its detractors. Zollo and Winter (2002) points out that the definition of dynamic capabilities offered by Teece et al. is firmly predicated on the assumption that the environment of the firm is rapidly changing even though this might be less pertinent for certain organizations that operate in environments where change occurs slowly. Firms such as these also do acquire, integrate and reconfigure the competencies inherent in the organization *despite* not working under rapidly changing conditions.

As such, Zollo and Winter (2002, p. 340) instead lay forward the following definition for capability: "a dynamic capability is a learned and stable pattern of collective activity through which the organization systematically generates and modifies its operating routines in pursuit of improved effectiveness." This paper adopts the latter definition, in part due to the usefulness of using the term 'organization' as opposed to 'firm' which has the benefit of having larger applicability, which is more appropriate when discussing public client organizations. Secondly, this particular definition also does not necessitate the existence of a drastically changing business environment which is a more relevant outlook considering that the construction industry is typically known for its sluggishness and unwillingness to embrace innovation in the form of new technologies and change (Lindahl, et al., 2010).

Capabilities are essentially a fusion of skills and processes. The value of a process is non-existent without the accompanying skills needed to perform it; likewise a skill has a very limited domain if it is not applied within an effective process (Dawson, 2012). Regardless of the degree of rapid change that occurs in the business environment, dynamic capabilities will follow a path that is dependent on the organization's history in a manner characterized by idiosyncrasy (Teece, et al., 1997). The uniqueness of this path does not, according to Eisenhardt and Martin (2000), preclude the notion that there exist best practices in utilizing dynamic capabilities to prompt organizational change.

In this respect, dynamic capabilities can be said to contain practices that are more or less effective in bringing about the intended change, especially with regards to certain elements of dynamic capabilities such as strategic decision making, alliancing, and knowledge brokering. Teece (2007) makes the claim that organizations no longer compete in who has the best process but rather in who has the best process improving capability. At the heart of this philosophy is the contention that improving processes is necessary in order to be able to compete in the current fast paced business environment.

However, as Anand et al. (2009) illustrate, a large share of companies that have adopted continuous learning initiatives - of which developing dynamic capabilities is a subset - have not yielded satisfactory results; a development that Anand et al. ascribe to the lack of a framework. Initiatives of this nature differ depending on the type of capability that is sought after. As Dawson (2012) points out, improving

specific business related capabilities such as attracting and retaining effective employees, improving product quality and ensuring efficient back-office processing are all immensely important and contribute to the competitive advantage of the organization.

However, these are not always the most influential capabilities; instead Dawson (2012) alludes to meta-capabilities as being the single most important capability that an organization can develop. These are the type of capabilities that enable the continued development of other integrated competencies. It may include the capability to rapidly learn new skills and processes, communicating openly within the organization, knowledge acquiring and sharing as well as adaptability and flexibility of organizational structure.

Although developing meta-capabilities can potentially be of immense value, they are also more difficult to achieve than other types of capabilities. In order for these to be developed, the client should not be preoccupied with short term results at the expense of long term objectives (Dawson, 2012).

Clients' Dynamic Capabilities

Hartman et al. (2010) stress the significance of developing both relational and contractual capabilities. Building on the works of Argyres and Mayer (2007), Hartman et al. (2010, p.1166) define contractual capabilities as "[the] successful management of the contingencies involved in transaction relationships with other parties, and their implications for the efficiency and effectiveness of the service delivery." To be contractually capable is to be able to perceive in advance where there might be room for opportunism in the contract and address such concerns prior to the commencement of the project, as early as in the tendering, drafting or negotiation phase (Hartmann, et al., 2010). This is of particular interest in the construction industry where opportunism has been identified as a core problem for clients (Boukendour, 2007; Reve & Levitt, 1984; Winch, 1989).

Opportunistic behavior has been shown to emerge as a result of changes that are undertaken by the client with regards to the project specification. By introducing changes in the project specification, the client may inadvertently induce the contractors to engage in opportunistic pricing of 'extras', a burden which is then carried by the client (Winch, 1989).

There are a number of contractual ways to deal with this predicament. It could be addressed by allowing the clients to specify in detail the roles and responsibilities of the different stakeholders, thereby removing any ambiguities that could potentially be exploited by contractors and thus reduce the overall scope of opportunistic behavior (Argyres & Mayer, 2007). In a study of design-build clients' competencies, Xia and Chan (2010) found that having a clearly defined project scope, in addition to sufficient financial and contract management capability, were key in ensuring project success. It is however important to be able to distinguish which of the parties constitutes the primary loci of contract management capabilities.

According to Argyres and Mayer (2007), control is allocated in accordance to the given contract terms; whereas roles and responsibilities, decision and control rights as well as communication fall under the managers' responsibilities, contingency planning and in particular dispute resolution fall under the domain of lawyers. This way of allocating contract design capability may serve to improve contract performance if relevant personnel develop contract design capabilities, given the sort of terms that are typically included in the organization's contracts. This is grounded in the assumption that the capabilities for designing such terms reside differentially in different kinds of personnel, in particular with respect to the managers, engineers or lawyers within the organization.

In contrast to contractual capabilities, relational capabilities deal with socially intricate routines, policies and procedures in an interorganizational context. The chief purpose of which is to govern the relationships as a way to achieve organizational goals (Hartmann, et al., 2010). To achieve these goals however, the client organization needs to develop relational and contractual capabilities and should not serve to hamper performance improvement by unremittingly retaining deeply seeded organizational routines that are not conducive to project performance (Haroglu & Leiringer, 2010).

In certain cases, what appears to be deficiencies in certain capabilities such the difficulty in producing accurate plans and estimates of cost and time related matters may not necessarily be attributable to the lack of a particular capability. Rather, as shown by Flyvbjerg et al. (2009), in some cases, this can be explained by the client's deliberate intent to overstate benefits by assuming higher traffic flows, underestimating risks and by using artificially low values for determining costs, all in an effort to embellish the benefits of a specific project and thereby promote decisions not necessarily grounded on a complete analysis of outcomes. Regardless of whether this misjudgment occurs as a result of delusion or deception, it nonetheless clearly signifies a skillset that the client is in need of improving. It may also be the case that the organization's capabilities differ depending on the individual client organization.

However, institutional arrangements in the form of public policy tend to simply assume that the level of capability that exists in a given client organization is adequate to meet the requirements put forward by policy. Instead, an assessment of these capabilities should be undertaken in order to ensure that beneficial outcomes are obtained from the procurement processes and that public values are safeguarded (Furneaux, et al., 2008). Part of assessing the organization's own capabilities is to be able to distinguish between times when the organizations capabilities suffice to reach the intended goal and when it may be more prudent to outsource those capabilities.

A knowledgeable client may even leave room for some modifications in the early design in order to make use of the contractors' comparative advantages (Warsame, et al., 2013). The Australian Procurement and Construction Council (APCC) recommend that the assessment of the organizations capabilities ought to be predicated on the basis of best practice criteria in which individual members of

the client organization can be measured and compared to a given standard. This assessment would be akin to the assessing that occurs when the client organization monitors consultants and contractors but instead of evaluating external parties, the evaluation would be internal (APCC, 2002).

Kometa et al. (1994) set out to investigate the chief attributes that clients need to possess in positively influence project consultant's performance. Having established that the weight of culpability is often been placed on consultants in cases where performance has been lacking, Kometa et al. (1994) suggest that the consultants are not necessarily exclusively to blame for a poor performance. Rather, it may also be ascribed to the client's lack of management the situation. To address this issue, the authors identify 10 main attributes and 47 sub-attributes that influence project consultants' performance.

Lim and Ling (2002) reduced the number of attributes to five, highlighting the most influential ones, and then proceeded to base those attributes as the theoretical underpinning for a model predicting client's contribution to project success. This was achieved by analyzing the attributes of the clients that consultants and contractors viewed as significant in contributing to project success. In particular, clients should have a clearer focus on specifying objectives, be creditworthy and allow for a more trusting relationship with the projects team members and in doing so avoid litigious behavior. Unfortunately, as Wong et al. (2008) explains, instead of building trusting relationships that would aid in achieving a successful project outcome, clients and contractors tend to collaborate in a highly confrontational environment where distrust is the norm.

Capability Maturity Models

An approach developed in the IT-sector is the Capability Maturity Model (CMM) which gave birth to a number of similar models that have been applied in such varied industries as Manufacturing, Health Care and Construction (Curtis, et al., 2009). In essence, the model was originally developed to identify strengths, weaknesses and risks of an organization's software process (Paulk, 1993). Later revisions have included an adaptation to suit infrastructure projects, but according to Jia et al. (2011) these have been adapted adequately. Additionally, the evidence base by which many maturity models are based have been characterized as thin (Grant & Pennypacker, 2006).

Concluding remarks

This paper has attempted to show the complexities involved in the term capabilities as it relates to public construction clients. The number of capabilities that are relevant to consider in discussing public construction clients are numerous in length and cover a wide range of disciplines, from the technical to the psychological. Although there appears to be a unanimous agreement in regards to the importance of both acquiring and further developing client capabilities, no all-encompassing method seems to exist for that purpose.

This might be explained on the ground that projects in construction have a unique component to them, a structure often characterized as loosely coupled (Dubois & Gadde, 2002). In addition to this, dynamic capabilities are also typified by their uniqueness with respect to how they manifest from one organization to another (Teece, et al., 1997). It seems therefore that the problem becomes double folded in the case of developing dynamic capabilities for public construction clients, who after all, function in both a highly uncertain and highly complex environment.

References

Anand, G., Ward, P. T., Tatikonda, M. V. & Schilling, D. A., 2009. Dynamic capabilities through continuous improvement infrastructure. *Journal of Operations Management,* 27(6), pp. 444-461.

APCC, 2002. *Client skills: Skills required by Government as the Construction Industry Client,* Deakin, Australia: Australian Procurement and Construction Council (APCC).

Argyres, N. & Mayer, K. J., 2007. Contract design as a firm capability: An integration of learning and transaction cost perspectives. *Academy of Management Review,* 32(4), pp. 1060-1077.

Boukendour, S., 2007. Preventing post-contractual opportunism by an option to switch from one contract to another. *Construction Management and Economics,* 25(7), pp. 723-727.

Briscoe, G. H., Dainty, A. R., Millett, S. J. & Neale, R. H., 2004. Client-led strategies for construction supply chain improvement. *Construction Management and Economics,* 22(2), pp. 193-201.

Chinyio, E. & Olomolaiye, P., 2010. *Construction stakeholder management.* Oxford, United Kingdom: John Wiley & Sons.

Curtis, B., Hefley, B. & Miller, S., 2009. *People Capability Maturity Model (P-CMM) Version 2.0 (No. CMU/SEI-2009-TR-003).*, Hanscom ABF, United States: Software Engineering Institute.

Dawson, R., 2012. *Developing knowledge-based client relationships.* Oxford, UK: Routledge.

Dubois, A. & Gadde, L. E., 2002. The construction industry as a loosely coupled system: implications for productivity and innovation. *Construction Management & Economics,* 20(7), pp. 621-631.

Eisenhardt, K. M. & Martin, J. A., 2000. Dynamic capabilities: what are they?. *Strategic Management Journal,* 21(10-11), pp. 1105-1121.

Flyvbjerg, B., Garbuio, M. & Lovallo, D., 2009. Delusion and Deception in Large Infrastructure Projects: Two Models for Explaining and Preventing Executive Disaster. *California Management Review,* 51(2), pp. 170-193.

Frödell, M., Josephson, P.-E. & Lindahl, G., 2008. Swedish construction clients' views on project success and measuring performance. *Journal of Engineering, Design and Technology,* 6(1), pp. 21-32.

Furneaux, C. W., Brown, K. & Allan, D., 2008. Public values embedded in Australian public works procurement. *Public Money and Management,* 28(3), pp. 167-172.

Grant, K. P. & Pennypacker, J. S., 2006. Project management maturity: an assessment of project management capabilities among and between selected industries. *IEEE Transactions on Engineering Management,* 53(1), pp. 59-68.

Haroglu, H. & Leiringer, R., 2010. *Achieving whole-life value: The challenges of service-led construction. In Association of Researchers in Construction Management.* Leeds, UK, ARCOM - Proceedings of the 26th Annual Conference.

Hartmann, A., Davies, A. & Frederiksen, L., 2010. Learning to deliver service-enhanced public infrastructure: balancing contractual and relational capabilities. *Construction Management and Economics,* 28(11), pp. 1165-1175.

Helfat, C. E. et al., 2007. *Dynamic capabilities: Understanding strategic change in organizations.* 1 ed. Victoria, Australia: John Wiley & Sons.

Jia, G. et al., 2011. Program management organization maturity integrated model for mega construction programs in China. *International Journal of Project Management,* 29(7), pp. 834-845.

Kometa, S. T., Olomolaiye, P. O. & Harris, F. C., 1994. Attributes of UK construction clients influencing project consultants' performance. *Construction Management and Economics,* 12(5), pp. 433-443.

Lim, E. H. & Ling, F. Y. Y., 2002. Model for predicting clients' contribution to project success. *Engineering Construction and Architectural Management,* 9(5-6), pp. 388-395.

Lindahl, G. et al., 2010. *Quality Innovation & Evidence in Healthcare Physical Environments in England & Sweden-Establishing a Collaborative Roadmap.* Edingburgh, Scotland, 3rd Annual Conference of the Health and Care Infrastructure Research and Innovation Centre, 22-24 September 2010.

Manley, K., 2006. The innovation competence of repeat public sector clients in the Australian construction industry. *Construction Management and Economics,* 24(12), pp. 1295-1304.

Merriam-Webster, 2014. *Capability - Definition and More from the free Merriam-Webster's Dictionary.* [Online]
Available at: http://www.merriam-webster.com/dictionary/capability
[Accessed 26 08 2014].

NAO, 2009. *Commercial skills for complex government projects.* [Online]
Available at: http://www.nao.org.uk/report/commercial-skills-for-complex-government-projects/
[Accessed 26 08 2014].

Oxford Dictionaries, 2014. *capability: definition of capability in oxford dictionary (British & World English).* [Online]
Available at: http://www.oxforddictionaries.com/definition/english/capability
[Accessed 26 08 2014].

Paulk, M., 1993. *Capability Maturity Model for Software.* Pittsburgh, United States: John Wiley & Sons.

Reve, T. & Levitt, R. E., 1984. Organization and governance in construction. *International Journal of Project Management,* 2(1), pp. 17-25.

Teece, D., 2007. Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal,* 28(11), pp. 1319-1350.

Teece, D. J., Pisano, G. & Shuen, A., 1997. Dynamic Capabilities and Strategic Management. *Strategic Management Journal,* 18(7), pp. 509-533.

Warsame, A., Borg, L. & Lind, H., 2013. How Can Clients Improve the Quality of Transport Infrastructure Projects? The Role of Knowledge Management and Incentives. *The Scientific World Journal,* Volume 2013, pp. 1-8.

Wilkens, U., Menzel, D. & Pawlowsky, P., 2004. Inside the black-box: Analysing the generation of core competencies and dynamic capabilities by exploring collective minds. An organisational learning perspective. *Management Revue,* 15(1), pp. 8-26.

Winch, G., 1989. The construction firm and the construction project: a transaction cost approach. *Construction Management and Economics,* 7(4), pp. 331-345.

Wong, W. K., Cheung, S. O., Yiu, T. W. & Pang, H. Y., 2008. A framework for trust in construction contracting. *International Journal of Project Management,* 26(8), pp. 821-829.

Xia, B. & Chan, A. P., 2010. Key competences of design-build clients in China. *Journal of Facilities Management,* 8(2), pp. 114-129.

Zollo, M. & Winter, S. G., 2002. Deliberate learning and the evolution of dynamic capabilities. *Organization science,* 13(3), pp. 339-351.